

ABSTRACT

An implantable drug infusion device which features an improved flow regulator which permits the flow rate to be independent of reservoir pressure within a given pressure range. The flow regulator features a membrane having a hole, the membrane itself positioned above a bottom layer such that sufficient deflection of the membrane causes the membrane to engage against the bottom layer. As liquid flows through the hole a drag force is applied to the edge of the hole resulting in a deflection of the membrane. Once contact is made between the membrane and the bottom layer, then flow reduced. In a further embodiment the bottom layer features a variable flow channel such that upon membrane deflection flow may only proceed through the hole and through the flow channel. By tailoring the shape and length of the variable flow channel the flow characteristics of the regulator versus pressure may be adjusted. In a further embodiment the flow regulator also features a flow sensor integrated therewith. This integrated sensor provides a measurement of flow and may be coupled to the flow regulator to provide feedback thereto.